SOLAR PHYSICS

A Journal for Solar Research and the Study of Solar Terrestrial Physics

VOLUME 50



D. REIDEL PUBLISHING COMPANY
DORDRECHT-HOLLAND/BOSTON-U.S.A.

All Rights Reserved

Copyright © 1976 by D. Reidel Publishing Company, Dordrecht, Holland No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording or by any informational storage and retrieval system, without written permission from the copyright owner

Printed in The Netherlands

TABLE OF CONTENTS

ARTICLES

ISSANDRAKIS, C. E., see Kundu, M. R. et al.	
URKAR, S. K., see Sawant, H. S. et al.	
SSEY, R. J., see Lienberg, D. H. et al.	
ionsle, R. V., see Sawant, H. S. et al.	
AY, R. J., see Loughhead, R. E.	
ANFIELD, R. C. / The Height Variation of Granular and Oscillatory Velocities	239
HERTKOV, A. D., see Pudovkin, M. I.	
HUPOVA, L. M., see Kovrizhnikh, O. M. et al.	
RAIG, I. J. D. and A. N. McClymont / Mass Motions in a Heated Flare	
Filament	133
E LOORE, C., see Van Beveren, D.	
odson-Prince, H. W., see Švestka, Z. et al.	
URST, J. / Observations of Coronal Polarization at the Solar Eclipse of 7	
March, 1970	457
ritzová-Švestková, L., see Švestka, Z. et al.	
OLUB, L., A. S. KRIEGER, and G. S. VAIANA / Observation of Spatial and	
Temporal Variations in X-Ray Bright Point Emergence Patterns	311
EDEMAN, E. R., see Švestka, Z. et al.	
UDSON, H. S., see Lin, R. P.	
ENBERG, P. A. / Umbral Boundaries, Convection, and the Depth of Sunspots	49
CKERS, K. / Upper Limits in the Toroidal Component of Force-Free Magnetic	
Fields in Stellar Atmospheres in the Context of Solar and Stellar Flares	405
AHLER, S. W., R. D. PETRASSO, and S. R. KANE / The Quantitative Properties of	
Three Soft X-Ray Flare Kernels Observed with the AS&E X-Ray Telescope	
on Skylab	179
AHLER, S. W., see Kundu, M. R. et al.	
ANE, S. R., see Kahler, S. W. et al.	
AWABATA, K., see Sofue, Y. et al.	
AWAJARI, N., see Sofue, Y. et al.	
DBRIN, M. M., V. V. PAKHOMOV, and N. A. PROKOF'EVA / The Existence of	
Quasi-Periodic Oscillations with Periods from a Minute up to some Hours in	112
the Solar Radio Emission at $\lambda = 3$ cm	113
DPP, R. A. and G. W. PNEUMAN / Magnetic Reconnection in the Corona and	0.5
the Loop Prominence Phenomenon	85

TABLE OF CONTENTS

KOVRIZHNIKH, O. M., I. A. SAVENKO, and L. M. CHUPOVA / Directivity of Non-Thermal X-Ray Emission from Solar Flares	44
Krieger, A. S., see Golub, L. et al.	
KUNDU, M. R., C. E. ALISSANDRAKIS, and S. W. KAHLER / A Comparison of	
Positions and Sizes of Sources of Centimeter and X-Ray Bursts	424
LABONTE, B. J. / Ha Observations of the August 12, 1975 Type III-RS Bursts	202
LANDMAN, D. A. / A Study of the He à 10830 Line Emission from Quiescent	
Prominences	38
LIENBERG, D. H., R. J. BESSEY, and B. WATSON / Evidence for Temporal	
Variations of Coronal Emission Line Intensity and Profile	10
LIN, R. P. and H. S. HUDSON / Non-Thermal Processes in Large Solar Flares	15
LOUGHHEAD, R. E. and R. J. Bray / Visibility of Magnetic Features on	-41
Filtergrams and Spectroheliograms	292
MARSH, K. A. / The Lifetime and Evolution of Fibrils	3
McClymont, A. N., see Craig, I. J. D.	-3
McKim Malville, J. / The Fine Structure of Prominences. II: Vertical Flux	117
Ropes and Filamentary Structure	7
Mouradian, Z. et I. Soru-Escaut / Quelques résultats d'observation des	И
spicules chromosphériques en K et D3	6
Nolte, J. T., see Švestka, Z. et al.	R
Orrall, F. Q. and E. J. Schmahl / The Prominence-Corona Interface Com-	
pared with the Chromosphere-Corona Transition Region	36
PAKHOMOV, V. V., see Kobrin, M. M. et al.	M
PETRASSO, R. D., see Kahler, S. W. et al.	30.0
PNEUMAN, G. W., see Kopp, R. A.	-9
PRADERIE, F. and R. N. THOMAS / Radiation Loss and Mechanical Heating in the	100
Low Solar Chromosphere	33
PROKOV'EVA, N. A., see Kobrin, M. M. et al.	
PUDOVKIN, M. I. and A. D. CHERTKOV / Magnetic Field of the Solar Wind	21
RAMSEY, H. E., see Schoolman, S. A.	
ROBERTS, B. / Intense Magnetic Fields and Umbral Dots	32
SAVENKO, I. A., see Kovrizhnikh, O. M. et al.	
SAWANT, H. S., R. V. BHONSLE, and S. K. ALURKAR / Microscopic Spectral	
Features in Solar Decametric Bursts and Coronal Irregularities	48
SCHMAHL, E. J., see Orrall, F. Q.	
SCHOOLMAN, S. A. and H. E. RAMSEY / The Dark Component of the Photo-	
spheric Network	-2
SCHROETER, K. H. / Comments on a Formula Describing the Secular Course of	
Sunspot Activity	50
Sofue, Y., K. Kawabata, F. Takahashi, and N. Kawajiri / Coronal Faraday	1
Rotation of the Crab Nebula, 1971–1975	46
Soru-Escaut, I., see Mouradian, Z.	

TABLE OF CONTENTS

RUIT, H. C. / Pressure Equilibrium and Energy Balance of Small Photospheric Fluxtubes	260
EWART, R. T. / Source Heights of Metre Wavelength Bursts of Spectral Types I	269
and III	437
ESTKA, Z., L. FRITZOVÁ-ŠVESTKOVÁ, J. T. NOLTE, H. W. DODSON-PRINCE, and E.	
R. HEDEMAN / Low-Energy Particle Events Associated with Sector Boun-	
daries	491
AKAHASHI, F., see Sofue, Y. et al.	
HOMAS, R. N., see Praderie, F.	
AIANA, G. S., see Golub, L. et al.	
ANBEVEREN, D. and C. De LOORE / Heating of the Solar Transition Zone and Corona	99
ERNAZZA, J. E., see Withbroe, G. L.	99
ATSON, B., see Lienberg, D. H. et al.	
VENTZEL, D. G. / Coronal Heating by Alfvén Waves, II	343
ITHBROE, G. L. and J. E. VERNAZZA / Active Region Flare Rates and 8.6 mm	
Brightness Temperatures	127
OSHIMURA, H. / Phase Relation between the Poloidal and Toroidal Solar-Cycle	
General Magnetic Fields and Location of the Origin of the Surface Magnetic	
Fields	3
IRIN, H. / Production of a Short-Lived Filament by a Surge	399
RESEARCH NOTES	
LLIS, R. S. / The Solar Abundance of Titanium	261
GILLIAM, L. B., see Wagner, W. J.	
AIN, N. K. and U. NARAIN / On Dielectronic Recombination Coefficients of the	
H, He and Ne Sequences	361
AUFMANN, P. / Polarization of a Periodic Solar Microwave Burst	197
RAT, V. V. / On Some Properties of the Photospheric Structure	259
RAT, V. A. and V. A. OSHEROVITCH / On the Excited States of Magnetic	
Configurations in Connection with the Characteristic Properties of Sunspots	65
Studies of Granular Velocities. VII: Granular	255
Velocities around Sunspots	255
IcKim Malville, J. / The Growth of Electric Current in the Eruptive	395
Prominence of June 8, 1974 (ARAIN, U., see Jain, N. K.	
ESIS, A., see Mattig, W.	
SHEROVITCH, V. A., see Krat, V. A.	
AGNER, W. J. and L. B. GILLIAM / A Possible Example of Giant Convective	
Cells Delineated by Magnetic Fields	265
DETRACTS OF FORTHCOMING PAPERS 231	, 505

BSTRACTS OF FORTHCOMING PAPERS

ABSTRACTS OF PAPERS FROM OTHER JOURNALS

5

5

5

5

5

515

5

515

515

515

505

513

501

- BOLTON, ANDREW: 'The Neutrino Flux from an Updated Standard Solar Model', Monthly Notices Roy, Astron. Soc. 173 (1975), 295. (Author's abstract)
- BUMBA, VACLAY: 'Relations between the Solar and Interplanetary Magnetic Field Distributions', Bull. Astron. Inst. Czech. 27 (1976), 153. (Author's abstract)
- Bumba, V., F. Hřebík, and J. Suda: 'Conditions for Solar Observations at the Ondřejov Observatory', Bull. Astron. Inst. Czech. 27 (1976), 217. (Authors' abstract)
- GABRIEL, A. H. and C. JORDAN: 'Analysis of EUV Observations of Regions of the Quiet and Active Corona at the Time of the 1970 March 7 Eclipse', *Monthly Notices Roy. Astron. Soc.* 173 (1975), 397. (Authors' abstract)
- GLENCROSS, W. M. and D. H. BRABBAN: 'Changes in X-Ray Brightness of a Solar Active Region', Monthly Notices Roy. Astron. Soc. 175 (1976), 33. (Authors' abstract)
- HUTCHEON, R. J., J. P. PYE, and K. D. EVANS: 'The Spectrum of Fe xvII in the Solar Corona', Monthly Notices Roy. Astron. Soc. 175 (1976), 489. (Authors' abstract)
- KARLICKÝ, M. and A. TLAMICHA: 'The Trajectories of U-Type Solar Radio Bursts', Bull. Astron. Inst. Czech. 27 (1976), 223. (Authors' abstract)
- KNOSKA, ŠTEFAN: 'The Intensity of the Magnetic Field of Sunspots during the Generation of a Penumbra', Bull. Astron. Inst. Czech. 27 (1976), 159. (Author's abstract)
- KNOŚKA, ŠTEFAN: 'The Magnetic Field of Disintegrating Sunspots', Bull. Astron. Inst. Czech. 27 (1976), 226. (Author's abstract)
- KUNDU, M. R. and C. E. ALISSANDRAKIS: 'A Search for Periodic Variations of Solar Radio Emission at 3.7 and 11.1-cm Wavelengths', *Monthly Notices Roy. Astron. Soc.* 173 (1975), 65. (Authors' abstract)
- MELROSE, D. B. and J. C. BROWN: 'Precipitation in Trap Models for Solar Hard X-Ray Bursts', Monthly Notices Roy. Astron. Soc. 176 (1976), 15. (Authors' abstract)
- RICHTER, J. R., Jr., A. R. CHUGHTAI, and D. H. YEAN: 'Approximate LTE Concentrations of Atoms, Ions, Molecules and Molecular Ions in the Ten-Elements HSRA', *Bull. Astron. Inst. Czech.* 27 (1976), 231. (Authors' abstract)
- ŠIDLICHOVSKÝ, MILOŠ: 'An Analytic Solution for the Line Formation in a Magnetic Field, II', Bull. Astron. Inst. Czech. 27 (1976), 155. (Author's abstract)
- SINHA, K. and M. C. PANDE: 'On the C₂ Phillips System in the Solar Spectrum', Bull. Astron. Inst. Czech. 27 (1976), 253. (Authors' abstract)
- VAN DER BORGHT, R.: 'Finite-Amplitude Convection in a Compressible Medium and its Application to Solar Granulation', Monthly Notices Roy. Astron. Soc. 173 (1975), 85.